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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/775,886

Filing Date: February 10, 2004

Appellant(s): MATSUNAMI ET AL.

Shrinath Malur
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed January 14, 2008 appealing from the Office action mailed January 04, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The amendment after final rejection filed on July 05, 2007 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2004/0039891	Leung et al.	2-2004
2003/0225801	Devarakonda et al.	12-2003
6,757,695	Noveck et al.	6-2004

2004/0139167

Edsall et al.

7-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 32-41 and 44-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As per claims 39 and 41, the limitations “the open request including information of a policy, which is set by an application creating the file” and “the open request including information of a policy set for the file by an application creating file” are not described in the specification. Careful review of specification revealed that the user or the application that created the file applies the policies to files (see specification page 22, lines 16-18). There is no disclosure of how these policies are created and applied to the files by the application that created the files. According to the fig. 11 and related description in specification of present application, the application, which created a file, is kept as an attribute of the file with the file metadata. The review of present application

specification, pages 22-26, reveals that the policies are set by the host and it is applied per application basis but not by the application creating the file and thus the claims are treated accordingly in this office action.

Claims 32-38 and 44-51 are also rejected due to their dependency on rejected claims.

Here it is further noted that the rejection of claims under 35 U.S.C. 112, first paragraph requires Wands analysis using factors A through H (see below).

(A) the breadth of the claims;
(B) the nature of the invention;
(C) the state of the prior art;
(D) the level of one of ordinary skill;
(E) the level of predictability in the art;
(F) the amount of direction provided by the inventor;
(G) the existence of working examples;
(H) the quantity of experimentation needed to make or use the invention based on the contents of disclosure.

The analysis was performed at the time of rejection, but was not discussed in detail during the rejection. As such, the examiner here presents the discussion of the factors above keeping the grounds of the rejection same, but providing the analysis based on the Wands factors.

Regarding factors (A) and (B), the claimed subject matter is directed to policy based storage system, wherein the application running on the host computer creates a

file and then various policies are applied to the created file and then the file is stored in the storage system based on applied policies. Here it is noted that the examiner has rejected the claims based on one limitation from the claim, the application creating the file applies the policy. Here, it is further noted that the limitation “the open request including information of a policy” is sent by the host (see appellant's disclosure, page 26, line 18 – page 28, line 12), and according to well known facts, it is understood that when application creates the file and sends the open request, it is the operating system or file system intercepts the request and applies the policy.

Regarding factor (C), Silvers et al. (US 2005/0010620) teaches similar policy based storage allocation by using various policies (see abstract), where file system, using APIs applies policy to files (fig. 13, pars. [0045], [0087]). Stakutis et al. (US 2005/0076066) also teaches that operating system or file system having access to policy database applies the policies to the file.

Regarding factors (D) and (E), it is understood from the state of the prior art at the time of the invention (see factor (C) above) that the open request sent by the application running on the host is intercepted by the operating system and/or file system, which has an access to policy database and the user has knowledge of importance of files created by the application and thus combination of both the user (host) and operating system/file system applies the policies.

Regarding factor (F), appellant's disclosure provides mere a statement “application creating a file or user applies the policy to the files”. Here it is understood that user has knowledge of policies and user can apply the policy, but there no

disclosure, how the hundreds of thousands of available applications modified to learn the policies set and importance of various files created by the application.

Regarding factor (G), the examiner is not aware of any working example exists or not.

Regarding factor (H), it is understood that person having ordinary skill in the art require to perform many undue experiments to make or use the invention, because as explained with respect to factor (F) above, the disclosure does not provide any adequate information on how the applications learns the importance of various file created by the application and applies policies based on the information.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 32-35, 37, 39-41, 44-48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al. (US 2004/0039891 A1)/(Leung et al. US 2003/0046270 A1, incorporated by Leung '891 reference, the teaching is relied upon is file migration based on policies set by user/administrator as admitted by applicant in remark section of applicant's response filed on October 20, 2006) and further in view of Devarakonda et al. (US 2003/0225801 A1) and Noveck et al. (US 6,757,695 B1).

As per claims 39 and 41, Leung teaches a file migration method between a first system and second system (Leung teaches storage environment comprising multiple servers coupled to one or more storage units and also using hierarchical storage management using source and target storage units, par. [0007]-[0010]),

The method comprising steps of:

at the first file system, receiving an open request from the computer for storing a file in the first file system, storing the file in the first file system (this is inherent in the system of Leung because, whenever a new file is created or file is opened, the file system must receive the file open/store request);

migrating the file from the first file system to the second system according to policy (Leung, pars. [0013], [0027], [0047]);

leaving information indicating a migration destination of the migrated file and information indicating attributes of the file in the first file system (Leung teaches that migration of file involves moving a file from its original location on a source storage unit to a target storage unit. A stub or tag file may be stored on the source storage unit in place of migrated file. The stub file generally comprises metadata related to the migrated file and information that can be used to determine the target storage location of migrated file (pars. [0009], [0027]).

Leung fails to teach applying policy based on the application creating the file and hence also leaving information of application creating file. Devarakonda teaches applying policies based on the application creating the file (Devarakonda, par. [0009], [0022] and [0027]). It would have been obvious to one having ordinary skill in the art at

the time of the invention to apply policies based on the application creating the file as taught by Devarakonda in the system of Leung because each application has different requirements of data/files and different access patterns and by setting policies based on application creating files improves the system performance (Devarakonda, pars. [0027] – [0028]). Devarakonda also teaches applying different attributes to files (Devarakonda, figs. 1 and 5, par. [0022]), which can be used as stub file metadata (attributes of application creating the file) left in source storage device taught by Leung as above.

With respect remaining limitations from preamble of claim, first and second file access controllers, plurality of magnetic disks and file systems, Leung teaches, hierarchical storage system, RAID storage system, NAS and SAN systems with physical and logical storage units (par. [0031]-[0032]) and networked system (par. [0034]). Controlling an access to files using file access controller and creating logical units on a plurality of disks is known in the art (see Novack teaches system as described in preamble of the claim, figs. 1 and 2, and their related description). Arranging storage system as taught by Novack provides reliable, stable and redundant system (see Noveck, col. 4, lines 43-52).

As per claims 40 and 44, Leung teaches logical and physical storages with volumes (par. [0031]-[0033]) and moving files from one volume to other volume inherently teaches moving from one logical unit to other logical unit. Leung and Devarakonda teach leaving stub file metadata in the source storage device as explained with respect claim 39 above.

As per claims 32-33, 35, 45-46 and 48, Leung teaches leaving a stub file with metadata (file name, file size, file type and access permissions are known metadata of the file) and destination location of migrated file (par. [0027], [0089], [0107]), which inherently teaches leaving a file name in the source storage (renaming a file in destination storage do not provide any advantage or improvement of the prior art, but instead requires more metadata and hence not given any patentable weight).

As per claims 34 and 47, Leung teaches file I/O driver module intercepting file requests from users and determines location of migrated file and file I/O driver restores the file (par. [0110]-[0111]). Intercepting and restoring file inherently requires sending access request to second file access controller because migrated file resides on second storage unit.

As per claims 37 and 50, Leung teaches migrating file from source storage unit to target storage units as explained above in claim 39, which inherently requires reading file from source storage and writing it into destination storage.

5. Claims 36, 38, 49 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung, Devarakonda and Noveck et al. (US 6,757,695 B1) as applied to claims 39 and 41 above and further in view of Edsall et al. US 2004/0139167 A1.

As per claims 36 and 49, Leung fails to teach NFS or CIFS, but his file migration method can be implemented on storage area networks (SAN) or network storage systems (NAS) (par. [0031]). NFS or CIFS are well known protocols allow users to

access and share files and directories on a network as if they were local (see Edsall et al. US 2004/0139167 A1, par. [0006], Edsall teaches NAS with NFS and CIFS is known in the art). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize NFS or CIFS protocol in the system of Leung to allow users seamless access to files and directories.

Claims 38 and 51 are rejected under same rationales as applied to claims 36 and 49 above.

(10) Response to Argument

Applicant provides three main arguments.

1) Rejection of claims 32-41 and 44-51 under 35 U.S.C. 112, first paragraph rejection:

The claims 32-41 and 44-51 were rejected under 35 U.S.C. 112, first paragraph for failing to enable requirement. The appellant contends that the disclosure provides enough information to enable the claimed subject matter and points to the passage from page 22, lines 16-18. The lines 16-18 from page 22 of appellant's disclosure reads:

"[t]he policy category is information that is set by the user or the application that created the file, and is information that is designated by the user or the application with regard to file storage conditions".

Here, appellant contends the two lines stated above provide enough information to enable the claimed subject matter. However, it is noted that "the policy" is defined as follows in the appellant's disclosure: (see page 22, line 18 – page 24, line 9)

"[A]n initial storage class is information that indicates the storage class of the LU in which the file is to be stored when the file is stored in a storage device for the first time. An asset value type indicates the asset value of the file. A life cycle model indicates the model applicable to the file from among life cycle models defined in advance. A migration plan indicates the plan applicable to the file from among plans concerning file migration (hereinafter called "migration") defined in advance.

The asset value is an attribute that designates the importance or value attached to the file. An attribute of "extra important," "important" or "regular," for example, can be designated as an asset value. The asset value can be used as a supplemental standard for selecting a storage class, i.e., files with an attribute of "important" or higher are stored in LUs that belong to the OnLine Storage class with Premium attribute, or as a standard for selecting a storage class when no life cycle models are designated, for example.

In the description of the present embodiment, it will be assumed that files that are "important" or higher are stored in LUs that belong to the OnLine Storage (Premium) class. Needless to say, the present invention is not restricted to such an assumption and different standards may be used to select storage classes of LUs for storing files.

The life cycle stages have been named by drawing analogy with life cycle stages of humans to describe how the usage status of a file changes over time, i.e., the period in which data is created is the birth, the period in which the data is updated and/or used is the growth stage, the period in which the data is rarely updated and is mainly referred to is the mature stage, and the period in which the data is no longer used and is archived is the old age. A life cycle model defines the life cycle a file experiences. The most general method of defining a life cycle is to define the stages based on the amount of time that has elapsed since a file was generated. One example is to define the "growth stage," or the "update stage," in which there are frequent updates, as one month; the "mature stage," or the "reference stage," in which the file is mainly referred to, as one year; and the "old age," or the "archive stage," as thereafter. Hereinafter this definition is called a "model 1", and is used in the following description. By varying the time interval of the life cycle model or by defining stages with finer resolution, various life cycle models can be defined and one life cycle model from among a plurality of life cycle models can be selected for use."

From above passages it is entirely clear that policy category includes attributes defining life cycle models, attributes defining importance of the file and attributes defining migration from one storage system to another. Here it is also noted that there are hundreds or thousands of applications (e.g. database programs, word processing

programs, spreadsheet programs, etc.) available and used by the users. If as claimed by the appellant, the application (programs) creating the file applies the policy, then each application available needs to learn the policies defined by the user/administrator on the storage system, it (application) also has to learn which file is "important" or "extra important" etc., as well as when the file should be migrated from one storage device to another storage device. The examiner contends, appellant's disclosure fails to teach, how the application creating the file learns the policies and applies that policies to the files created and as such the disclosure fails to enable the limitation "the open request including information of a policy, which is set by an application creating the file".

On the contrary, the examiner's interpretation (based on 112 first paragraph rejection above) of claims is clearly supported by the appellant's disclosure. (See page 24, lines 9-17):

"[F]urthermore, a specific life cycle model can be applied to a certain type of files, or life cycle models can be applied on a **per-application basis** such that a specific life cycle model is applied to files created by a certain application. Names of the life cycle stages can be expressed in terms of growth stage," "mature stage," and "old age" that correspond to the life of a person, or in terms of "update stage," "reference stage," and "archive stage" based on file behavior. In the present embodiment, the latter expressions are used in order to more clearly indicate the behavior of files."

2) The rejection of claim independent claim 39 and dependent claims 34-35, 36-38 and 40 under 35 U.S.C. 103(a):

Appellant contends Leung et al. '270 does not disclose a policy is set by an application creating the file. However, it is noted that claims are treated with respect to interpretation in view of rejection of claims under 35 U.S.C. 112, first paragraph and as such it is understood that policy category is applied per application basis and not by the

application that created the file, which is taught by the Devarakonda et al. '801 reference. The appellant further argues (based on certified translation provided by the appellant) that the Leung et al. '270 reference is not a valid reference, but it is noted that Leung et al. '270 reference also claims priority from provisional application 60/407,587 filed on August 30, 2002, which predates appellant's foreign priority of March 27, 2003 and the provisional application 60/407,587 includes teaching of leaving stub file in the source volume (see page 3, paragraphs [15], [16] and [19] of the provisional application 60/407587). Thus, appellant's arguments are not persuasive and the combination of Leung, Devarakonda and Noveck teach the claimed subject matter based on interpretation from rejection of claims under 35 U.S.C. 112, first paragraph rejection.

3) The rejection of dependent claims: As mentioned above, the defendant claims do not impart any patentability to claimed invention.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Kaushik Patel.

Examiner, AU2188

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